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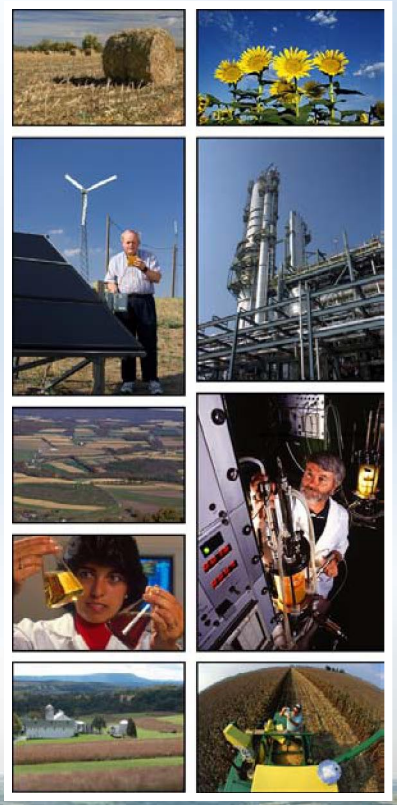

Tiger Team Update: Hawaii Agricultural Opportunities

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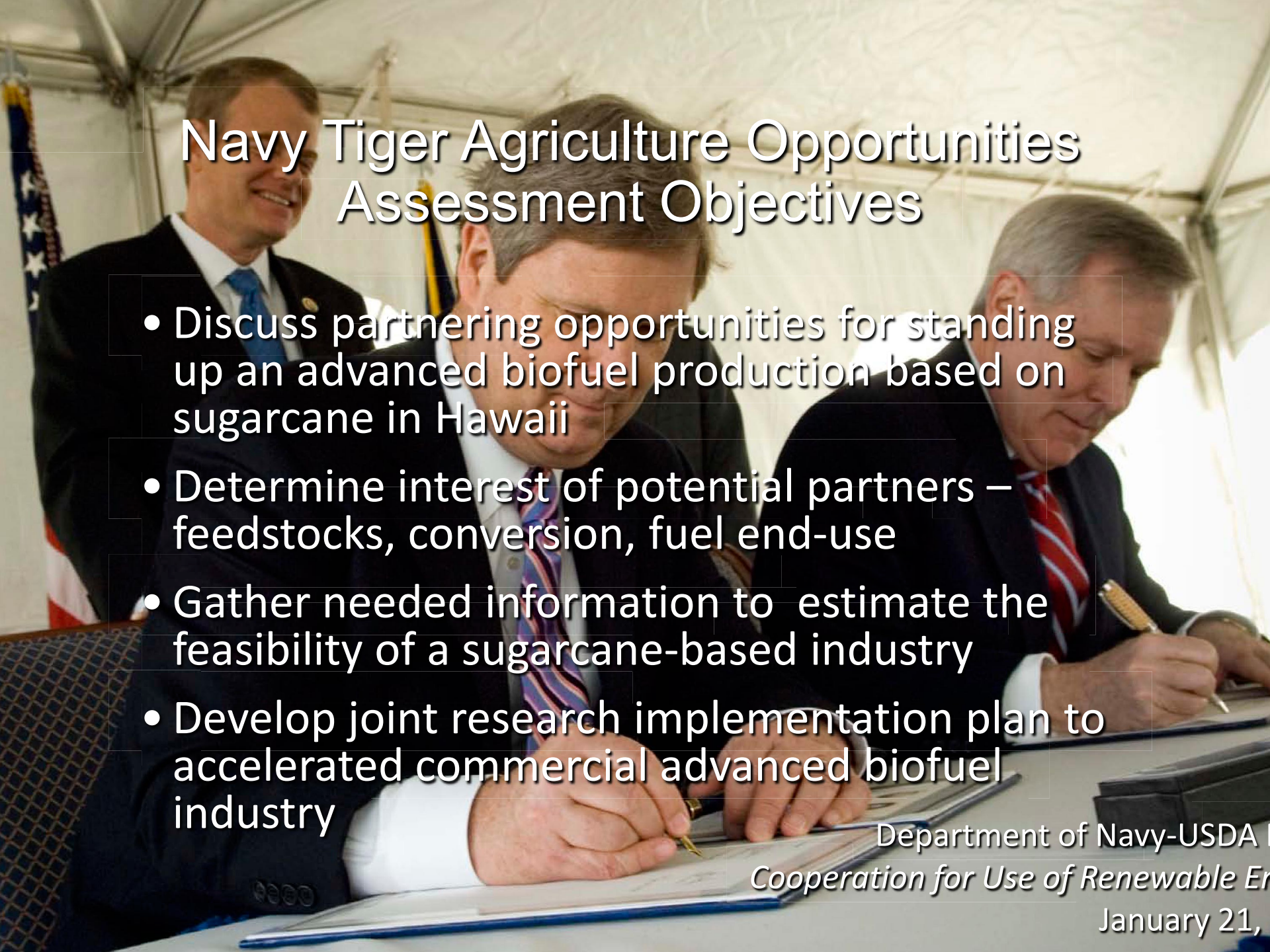
April 6, 2010

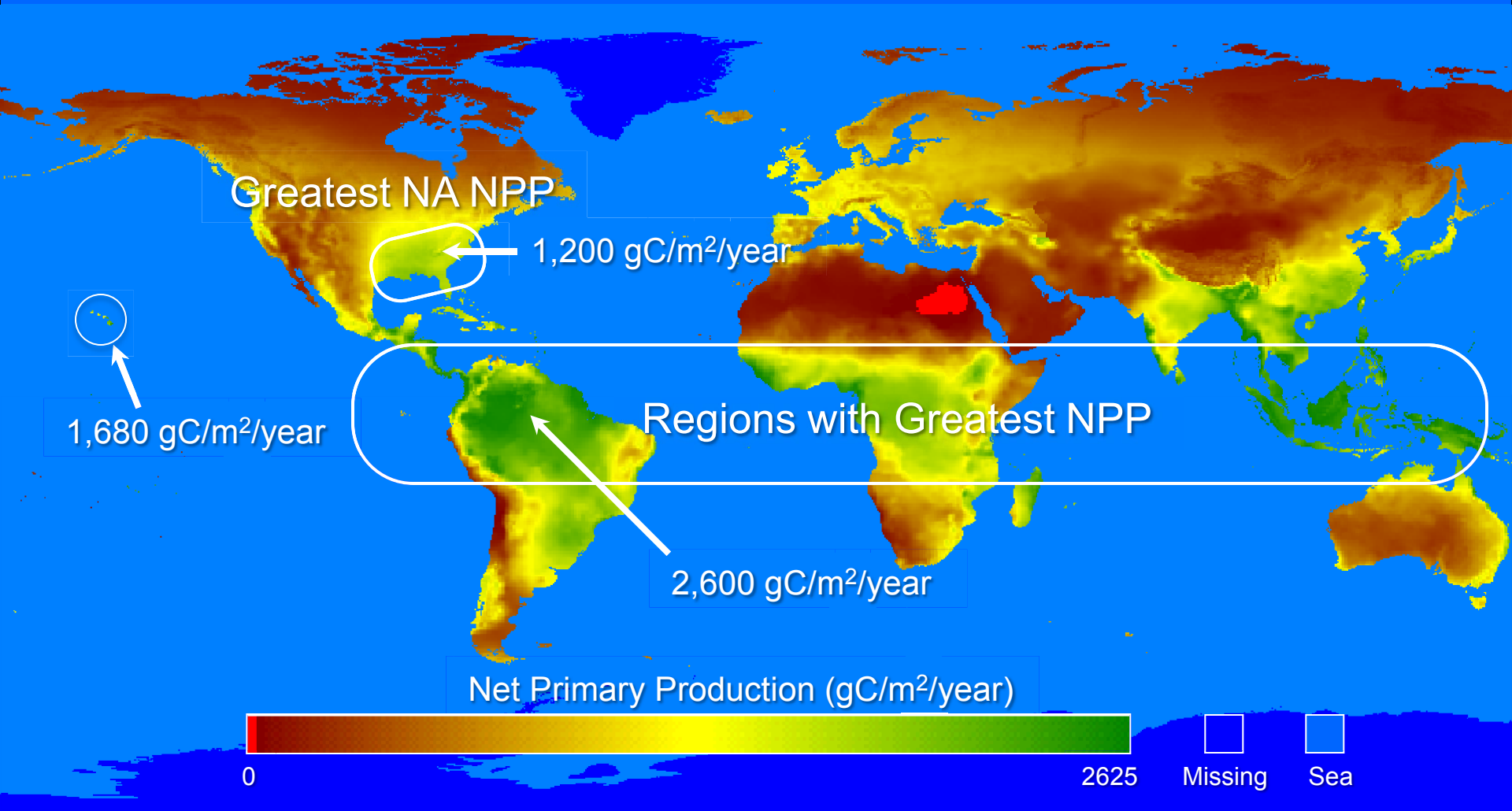


Navy Tiger Agriculture Opportunities Assessment Objectives

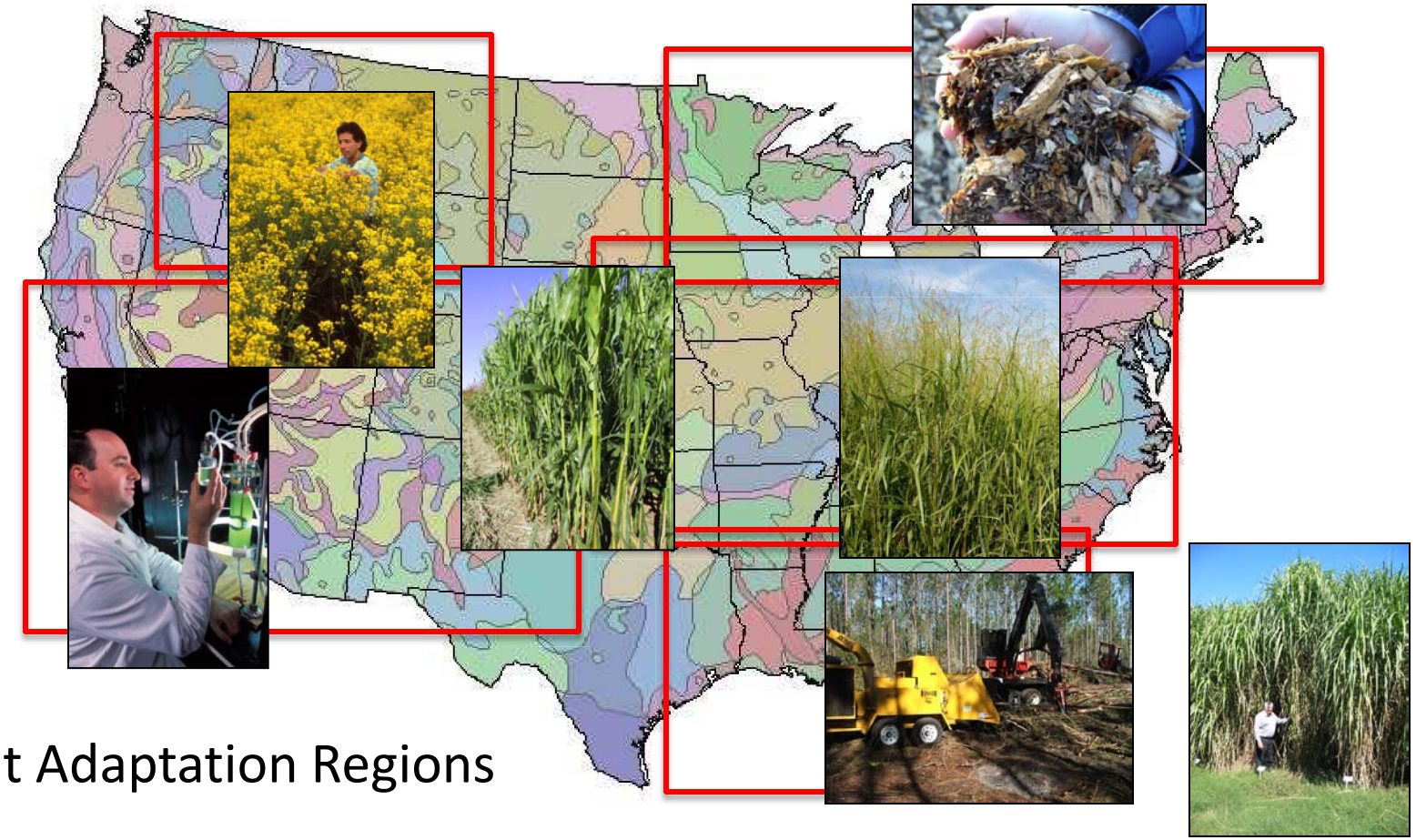
- Discuss partnering opportunities for standing up an advanced biofuel production based on sugarcane in Hawaii
- Determine interest of potential partners – feedstocks, conversion, fuel end-use
- Gather needed information to estimate the feasibility of a sugarcane-based industry
- Develop joint research implementation plan to accelerated commercial advanced biofuel industry

Department of Navy-USDA
Cooperation for Use of Renewable En
January 21,

Natural Net Primary Production



Regionally Appropriate Strategies



Plant Adaptation Regions

Why Regionalized Strategies?

Common needs for all production systems:

- High yielding, input-efficient varieties
- Management of all natural resources and human capital – soil, water, GHG, workforce development
- Trade-offs and competition with other crop and livestock production systems
- Pest management / Risk management – emergent pests, invasiveness, gene escape
- Feedstock harvest, handling, and storage

Common to Regionalized Strategies

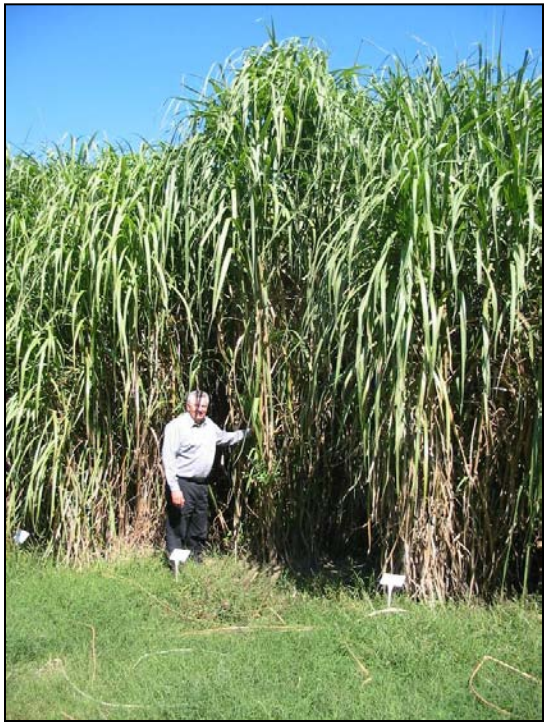
- Involve as many states in the nation as possible
- Supply chain approach involving robust public-private partnerships – commercialization
- Best science used to help ensure dependable supplies of dedicated biomass feedstocks – multifunctional landscape approach
- Economic and environmental uncertainties addressed up front

Dedicated Biofuel Feedstock Crops

Energy Crop	Ethanol yield	Drop-in fuel yield
	gallons/acre	gallons/acre
Sugarcane	1900 [1]	950 [2]
Woody biomass	1040	520
Perennial grasses	480 [2]	240
Biomass sorghum	480	240
Oil seed		70

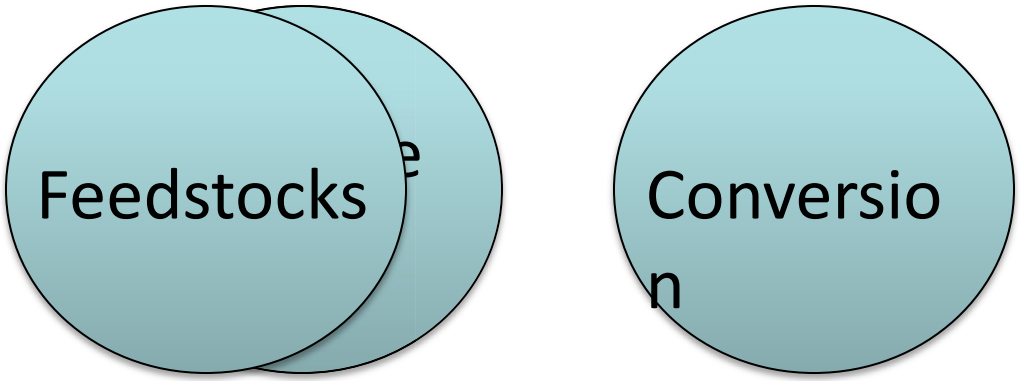
[1] Hawaii (two-season harvest) estimate: 2,200 gallons/acre/year
[2] Estimated drop-in fuel yield is 50% of ethanol yield
[3] Plant biotechnology company estimate: 1,100 gallons/acre/year

Why Focus on Sugarcane



- Perennial and non-invasive
- Well-known production culture
- Good potential for further improved yields – genetic & intensive management
- More energy yield per acre than other existing crops

Meeting National Biofuels Goals



A complete supply chain systems approach

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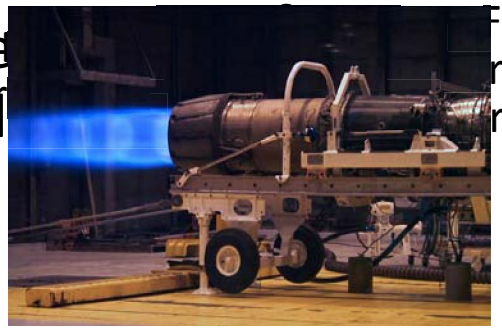

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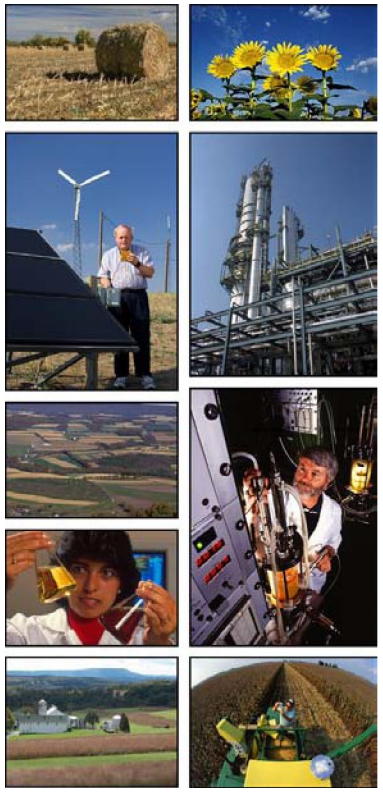

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